

REMARKS

The Examiner has rejected claims 1, 2, and 8 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 5 of U.S. Patent 6,065,346.

Claim 5 of U.S. Patent 6,065,346 relates to a measurement system including a sensor formed on an SOI substrate and having a power input, an output, and an offset related to the time that power is applied. By applying power, obtaining a reading, and removing power to allow the sensor to recover to an offset that existed before power was first applied, before power is again applied and a second reading obtained, the error in the measurement system due to sensor offset is reduced. The use of resistors or piezoresistors as the sensor elements in the bridge configuration of Vogele does not result in Applicant's invention.

Claim 1 of the present application requires a layer of silicon of a second conductivity type which is divided by an insulation layer into an upper layer and a lower layer. Claim 1 further requires means for connecting a voltage to the lower layer of silicon, for example by utilizing contacts 44 or 46. Various techniques for applying the voltage to the lower layer of silicon are disclosed including applying a voltage from a midpoint of the bridge, using a resistive divider to apply a voltage, and applying a voltage pulse in a duty cycle pattern. .

Claim 5 of the '346 patent does not require the structure required by claim 1, i.e., a layer of silicon of a second conductivity type which is divided by an insulation layer into an upper layer and a lower layer. Nor does the '346 patent teach or contain any suggestion of the structure required by claim 1. Claim 5 of the '346 patent does not require any means for connecting a voltage to a lower layer of silicon or any reason that connecting a voltage to this layer would be desirable.

While the '346 patent and the present application provide the advantage of reduced sensor offset, they utilize quite different structures and accomplish the reduction of offset in an entirely

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different way. The present invention requires a particular silicon structure including a lower layer of silicon and a means of connecting a voltage to this lower layer, none of which features are present in the '346 patent.

Claim 8 of the present application requires a first layer of a semiconductor material, an insulation layer formed on the first layer, a second layer of semiconductor material formed on the insulation layer, and a plurality of resistors formed in the second layer and interconnected into a bridge having an output. Claim 8 further requires means for connecting a first voltage to the bridge and means for connecting a second voltage to the first layer.

The '346 patent does not disclose the structure required by claim 1, i.e., a first layer of a semiconductor material, an insulation layer formed on the first layer, a second layer of semiconductor material formed on the insulation layer, and a plurality of resistors formed in the second layer and interconnected into a bridge having an output. The '346 patent does not disclose any means for connecting a voltage to a the first layer of semiconductor material or any reason that connecting a voltage to this layer would be desirable.

While the invention of the '346 patent is useful in many applications, it does require that the measurement system be designed for periodically interrupting the power to the sensor for a period of time. In many applications the sensor is necessarily powered continuously and interrupting the power to the sensor periodically during normal operation is not an available option. The present invention allows the sensor to be continuously powered as required in many applications. Reconsideration of the rejection based on obviousness-type double patenting is respectfully requested.

Claim 2 has been amended to provide antecedent basis.

Independent claim 9 has been added and includes the limitations of claim 1 and claim 3 which the Examiner has indicated would be an allowable claim. Claims 10-13 have been added and include limitations similar to claims 4-7.

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Therefore, since the claims of the present invention have been shown to include limitations not taught or suggested by the references cited, the Examiner is requested to allow claims 1-13 and to pass this application to issue.

Respectfully submitted,

Date

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

Claim 2 is shown below in marked-up form:

2. (Amended) Sensor of claim 1, wherein said plurality of piezoresistors form a Wheatstone bridge having a top, a bottom, and a midpoint, with said first voltage being applied at said top and said bottom of said bridge and said second voltage being approximately equal to a voltage at a midpoint of said bridge.

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